IPAdr

Objective

Explore IP addresses both IPv4 and IPv6. The problem illustrates the benefit of clear interface design supplemented by implementation; also known as polymorphism.

REFERENCES

User needs and requirements

This projectlet is to fulfill the need of software engineers.

Id	Need/Requirement
1	The utility shall be a command line utility.

Specifications

Id	Specification
1	Subcommand v4 specifies the rest of the command line uses the v4 context.
2	Subcommand v6 specifies the rest of the command line uses the v6 context
3	The argument is an IP address.
4	The argument is verified for proper syntax. Preliminary semantic check follows.
5	Command v4 with the switch -m (or —mask) indicates that the argument is a subnet mask. The argument is syntax checked and semantically verified
6	If a value is provided for -m in addition to the argument IP address, then the specified mask and the address are analyzed together.
6	Given a valid v4 IP address, the utility should analyze and report the following:
	- Class of the IP address
	- Is it routable / private
	- if the subnet can be inferred, network id and node id
	- if the subnet can be inferred - the broadcast address
	- if the subnet can be inferred - what is the network mask

Id	Specification
	- if the address is a “reserved” address - list what is the special significance

Example usage

Notes

Subnetting -
.0 is bad - network id
.ff -> broadcast